Wolfram Heumann
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Professor Dr.J.L e d e r b e r g.
Dept.of Bacteriology,Univ.of Melbourne
Carleton N3
M e l b o u r n e, Australia.

Dear Josh!

Your and Esther's descriptions from your travel and the first days in Australia have been very interesting and enjoying to read for me.I hope all the things go further very well and you have an excellent work in a pleasant time.

In the last experiments I get evidence for recombination between $B_6$ - mutants.I have crossed:

r S $Sm^r$ pol+ X r R $Sm^s$ pol-

and I get the recombination:r R $Sm^r$ pol-.The cross has been grown in nutrient broth tubes.The selection has been made in nutrient agar plates with streptomycin.The recombinant colonies grow very clear against the r S $Sm^r$ pol+ background,they are stable.I get never any r R $Sm^r$ colonie in the control tubes and plates,made in the same number, as crosses were done.The recombinant frequency,expressed in r R $Sm^r$ colonies is 1 recombinant in about 1o ooo cells.If I put the tubes in the rotator ,I get this rate in 5 days,if I place the tubes without movement,I use about 9 days for this result.In the rotator the star forming cells settles in a ring at the tube wall.The microscopic examination of these cells shows very dense stars,cell-fusion in the star center is often observable.But the most stars are formed separate either from pol+ or from pol- cells, seldom mixed stars are discernibly.This may explain the relatively low rate of recombination.Now from these experiments I have $Sm^r$ mutants in both mutant groups,pol+ and pol-, and I will establish crossings separate in the pol+ and in the pol- group,hoping I get then a higher recombination frequency.

Beside these experiments, I performed earlier same other crosses with other mutants. Par example: l S x r R. I get the recombinant l R about 1 in 1o ooo. But there are two disadvantages: first it is difficult to select the l R mutant against the parental background, and second: the mutation rate from rR to lRx is about 1 in 1oo ooo. I think it is much more convenient and conclusive if the $Sm^r$ marker is involved in any crosses.

Now I am twice sad to leave with regard to these first results. My position in Germany requires to much routine work cutting down the time for research. But I would be very happy and I hope still I get the occasion to meat you in Germany in your return-journey. Then we could speak over the research progress and the results obtained in the last experiments. We leave Madison Oktober 18th and will be in Braunschweig November first. My address there is Botanisches Institut der Technischen Hochschule. Phone Number: 2 o191, ext. 213.

Finally I say you ones more my best thanks for all your help and advancement. I have learned to go in your lab, and if I made progress then it is your merit. I send you for good bye some pictures, but unfortunately the colores are much more bad, than in the slides.

With the best recommandations to Esther and greetings from Barbara

I am sincerely yours

Wolfgang Gutmann

1.) The symbols of the mutants:

r = red
l = white
R = rough
S = smooth
Sm = streptomycine
pol = pol-bodie

2.) The pictures:

1.= Madison from governors island
2.= Lake Mendota from Prospect Pl.
3.= Barbara and Irene. In the glass is a turtle Barbara just has catched
4.= I
5.= Dodecatheon meadia, shooting star
6.= Cypripedium acaule, mocassin flower
7.= Cypripedium arietinum, ram's-head Lady's-slipper.